of the column of kerosene, and, second, by a certain hydrostatic pressure *5* to be determined. From which:

Pkerosene== AX density of kerosene+ *8* = 0.8fe+ <5 mm of water.

But Since Pwater = Pkerosene, it follows that:

h = Q.8h+8 and 5 = +0.2*h* mm of water

If it is considered that the water in this experiment represents the cold air and that the kerosene represents the incandescent gases in the furnace, the following law may be established with regard to the hydrostatic pressure which will be produced at the different parts of a furnace chamber containing hot gases:

The hydrostatic pressure 8 in kilograms per square meter at a point in a chamber bathed by the incandescent gases, located at a distance H above the free surface of those gases, is equal to the difference A between the weight in kilograms of a cubic meter of the external air and a cubic meter of the incandescent gases, multiplied by the height H, from which

8= HA.

Example.—If 77 = 0 m 70 and the weight W of 1 cu m of hot gases at 1200°,

1 33

Pi2oo=$_{1+}$i$_{|200}$ kg = 0 kg 25,

from which

8 = 0.7 (1.29 - 0.25) = 0 kg 728 per square meter,

or 0 mm 728 of water, since the pressure of 1 kg per square meter is equal to the pressure exerted by a column of water 1 mm in height.

Experiments which may be readily made will show that the light hot gases which fill the furnace are actually exerting a pressure greater than that of the atmosphere.

Open the register connected with any hot-air house-heating system. A jet of hot air escapes with some force. What is it that sets this air in motion? What is it that

provides the energy necessary for this motion?

Open the sight hole located at the upper part of an open-hearth regenerator chamber. If the regenerator is not connected

(1) Refer to Appendix II.